CLAIMS

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1. A 3-phase traction motor comprising a winding,

characterized in that said winding includes insulation consisting of at least two semiconducting layers, each layer providing a substantially equipotential surface, and solid insulation between said semiconducting layers.

2. A motor as claimed in claim 1, which is an asynchronous motor.

3. A motor as claimed in claim 1, which is a synchronous motor.

4. A drive system for a locomotive or motor coach, comprising a motor as claimed in claim 1, 2 or 3 and a regulator device connected thereto.

5. A system as claimed in claim 4, wherein said regulator device is a semiconductor ac/ac converter.

6. A drive system for a locomotive or motor coach, comprising a transformer having a winding, a thyristor bridge supplied by the transformer, and a dc/ac converter supplied by the thyristor bridge and arranged to supply power to a traction motor,

characterized in that said winding includes insulation consisting of at least two semiconducting layers, each layer

providing a substantially equipotential surface, and solid insulation between said semiconducting layers.

7. A drive system for a locomotive or motor coach, comprising a rotating converter having a winding and arranged to supply power to a traction motor,

characterized in that said winding includes insulation consisting of at least two semiconducting layers, each layer providing a substantially equipotential surface, and solid insulation between said semiconducting layers.

8. A system as claimed in claim 7, wherein the rotating converter comprises a single machine having both motor and generator functions.

9. A system as claimed in claim 8, wherein the rotating converter is a phase converter.

10. A system as claimed in claim 7, 8 or 9, wherein the rotating converter supplies a regulator device.

11. A system as claimed in claim 7, 8 or 9, wherein the rotating converter supplies a rectifier bridge which supplies a dc/ac converter.

12. A system as claimed in claim 7, 8 or 9, wherein the rotating converter supplies an ac/ac frequency converter.

13. A motor or system as claimed in any preceding claim, characterized in that at least one of said layers has substantially the same coefficient of thermal expansion as the solid insulation.

14. A motor or system as claimed in any preceding claim, characterized in that the flux paths in the core of a magnetic circuit in the motor, transformer or rotating converter consists of laminated sheet plate and/or rough forged iron and/or cast iron and or powder-based iron.

15. A motor or system as claimed in any preceding claim, characterized in that the innermost semiconducting layer (32) which surrounds at least one conductor (31) is at substantially the same potential as the conductor(s) (31).

16. A motor or system as claimed in any preceding claim, characterized in that the outer semiconducting layer (34) is connected to a selected potential.

17. A motor or system as claimed in claim 16, characterized in that the selected potential is earth potential.

18. A motor or system as claimed in any preceding claim, characterized in that a current-carrying conductor of the winding comprises a plurality of strands, only a few of the strands not being insulated from each other.

19. A motor or system as claimed in any preceding claim, characterized in that said winding(s) and also

permanently insulated connection conductors for high tension current between the system units are produced using a cable (6) with solid insulation for high voltage and comprising at least two semiconducting layers (32, 34), and also strands (36) which may be insulated or uninsulated.

20. A motor or system as claimed in claim 19, characterized in that the high-voltage cables (6) have a conductor area of between 10 and 3000 mm^2 and have an outer cable diameter of between 6 and 250 mm.

21. A motor or system as claimed in any preceding claim, characterized in that said winding is designed to carry a rated voltage of at least 10 kV.